

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference NP/48/03	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/SG 03/00065	International filing date (day/month/year) 28/03/2003	(Earliest) Priority Date (day/month/year) 30/05/2002
Applicant HYDROBALL TECHNICS PTE LTD		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☐ the text is approved as submitted by the applicant.
- ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

- ☒ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

1
☐ None of the figures.

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Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A cleaning system for cleaning tubing using cleaning balls 20 circulated with the fluid through tubing 8. The system includes a separator 12 having a perforated funnel, which permits the fluid, but not the cleaning balls 20, to pass through. A housing 21 having an apertured partition 28 is used to divide the housing 21 into a first compartment 19 and a second compartment 27. An entrance 2 of a fluid supply pipe 23 and an exit 3 of a ball supply pipe 24 are formed for creating a difference in pressure to create a suction force to recirculate the cleaning balls 20 from the housing 21 via the ball supply pipe 24, back to the tubing 8 for cleaning the walls of the tubing 8. An entrance 13 of a ball return pipe 17 and an exit 14 of a fluid return pipe 16 are formed for creating a difference in pressure to create a suction force to recirculate the cleaning balls 20 from the separator 12 via the ball return pipe 17, into the housing 21.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F28G1/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F28G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 12 47 359 B (HITACHI LTD) 17 August 1967 (1967-08-17) column 3, line 39 -column 5, line 18; figure	1,2,4-7
Y	----	8-11
Y	GB 700 833 A (JOSEPH TAPROGGE) 9 December 1953 (1953-12-09) page 2, line 96 -page 3, line 8; figure 1 page 3, line 95 - line 106 page 4, line 3 - line 31; figures 4-7 page 4, line 83 - line 91; figures 12,13	8-11
X	US 5 592 990 A (BEN-DOSA CHAIM) 14 January 1997 (1997-01-14) cited in the application	4
Y	column 2, line 32 -column 4, line 56; figures	1-3,5-7
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

20 June 2003

Date of mailing of the international search report

26/06/2003

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3 215 195 A (WILHELM TREPLIN FRIEDRICH) 2 November 1965 (1965-11-02) column 3, line 43 -column 4, line 37; figures ----	1-3,5-7
X	EP 0 200 820 A (GEA ENERGIESYSTEMTECHNIK GMBH) 12 November 1986 (1986-11-12) page 5, line 7 -page 8; figures ----	4
A	FR 2 522 993 A (TECHNOS ET CIE) 16 September 1983 (1983-09-16) page 5, paragraph 2 -page 6, paragraph 3; figures 1-3 ----	1-3,5
A	FR 2 479 439 A (TAPROGGE REINIGUNGSANLAGEN) 2 October 1981 (1981-10-02) page 4, line 12 -page 5, line 6; figure 1 -----	9
A		10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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